

Early Discharge After Laparoscopic Hysterectomy: Six Month Trial of Outcomes and Complications

Laparoskopik Histerektomi Sonrası Erken Taburculuk: 6 Aylık Sonuçlar ve Komplikasyonlar

Çağlar ÇETİN^a, Ayşe Filiz GÖKMEN KARASU^a, Fatma Başak TANOĞLU^a, Taha TAKMAZ^a,
Seda ATEŞ^a, Pınar ÖZCAN^a, Ümmügülüm KOÇ^a, Özge PASİN^b, Serdar AYDIN^c

^aDepartment of Obstetrics and Gynecology, Faculty of Medicine, Bezmialem Vakıf University İstanbul, Türkiye

^bDepartment of Biostatistics, Faculty of Medicine, Bezmialem Vakıf University İstanbul, Türkiye

^cDepartment of Obstetrics and Gynecology, Faculty of Medicine, Koç University İstanbul, Türkiye

ABSTRACT

Objective: The gynecologic patient benefits from early discharge in many ways. A growing evidence of literature suggests that same-day discharge is safe for minimally invasive hysterectomy for benign indications. The primary outcome was the acceptability rate of early discharge after informing patients that if they wish they can be discharged from the hospital within 24 hours or they might stay longer. The secondary outcomes were to evaluate the 30 day emergency department and hospital readmission rates between same-day discharge and delayed discharge after laparoscopic hysterectomy in an academic referral centre. **Material and Methods:** This is an observational non-randomised prospective clinical trial. Patients who underwent laparoscopic hysterectomy at an hospital deemed “fit for discharge” were evaluated. Variables including patient comorbidities and other details were prospectively collected for each patient. Postoperative outcomes were followed for 30 days following the operation utilizing the hospital’s central medical record system. All patients were scheduled for postoperative 1 month control to account for any other hospital visits or admissions besides our centre. **Results:** From October 2021 to April 2022, a total of 275 laparoscopic hysterectomies were performed at our department. After exclusion criteria 194 patients were deemed fit for discharge using a check-list. 96 (49.5 %) of these preferred to be discharged before 24 hours while the slight majority of 98 patients (50.5 %) opted to stay over 24 hours. The groups were similar with regards to age, BMI, clinical and surgical characteristics. The only effective variable reaching statistical significance between the two groups was the duration of the operation. Our readmission rate was 1.04 % in the early discharge group and 1.02 % in the late discharge group. **Conclusion:** Duration of surgery was the sole variable effecting patient preference of early discharge. There was no difference in complications or 30- day emergency department visits in either group. Even though it was considered safe to be early discharged to home, as evident by low complication and readmission rates, more than half of our patients did not prefer to do so. Promoting nursing staff and home based visits may increase the acceptability of early discharge.

Keywords: Early discharge; same day discharge; laparoscopic hysterectomy

ÖZET

Amaç: Jinekolojik nedenlerle ameliyat olan hastalar erken taburculuktan birçok yönden faydalanırlar. Literatürde artan kanıtlar, benign nedenlerle ameliyat olan hastalarda aynı gün taburcu olmanın minimal invaziv cerrahi için güvenli olduğunu göstermektedir. Bu çalışmanın birincil amacı, hastaya tercihini sorarak erken taburcu olmanın kabul edilebilirliğini değerlendirmektir. İkincil amaç olarak postoperatif komplikasyon ve hastaneye yatış oranlarını “erken taburculuk ve “geciktirilmiş taburculuk” grupları arasında karşılaştırmaktır. **Gereç ve Yöntemler:** Bu çalışma prospektif randomize olmayan kontrollü bir klinik çalışma olarak dizayn edildi. Üniversite Hastanesinde “erken” taburcu olmaya uygun görülen, laparoskopik histerektomi yapılan hastalar değerlendirildi. Erken taburculuk açısından uygunluk bir “checklist”e göre belirlendi. Bu çalışmanın birincil amacı, hastaları isterlerse 24 saat içinde taburcu olabilecekleri veya daha uzun süre kalabilecekleri konusunda bilgilendirdikten sonra erken taburcu olmanın kabul edilebilirlik oranını belirlemektir. **Bulgular:** Ekim 2021 - Nisan 2022 tarihleri arasında bölümümüzde toplam 275 adet laparoskopik histerektomi yapıldı. Çalışmaya dahil edilme kriterlerini karşılamayan hastalar elendikten sonra 194 hasta bir kontrol listesi kullanılarak taburcu edilmeye uygun bulundu. Bunların 96’sı (%49,5) 24 saat önce taburcu olmayı tercih ederken, 98 hasta (%50,5) 24 saatten fazla kalmayı tercih etti. Gruplar yaş, VKİ, klinik ve cerrahi özellikler açısından analiz edildiğinde sonuçlar benzerdi. İki grup arasında istatistiksel olarak anlamlılığa ulaşan tek etkili değişken operasyon süresiydi. Yeniden hastaneye yatış oranımız erken taburculuk grubunda % 1.04, geç taburculuk grubunda % 1.02 idi. **Sonuç:** Komplikasyon ve tekrar başvuru oranlarının düşük olması nedeniyle eve erken taburculuk güvenli kabul edilse de hastalarımızın yarısından fazlası bunu tercih etmemiştir. “Ev vizitleri” ve hemşirelik hizmetlerinin iyileştirilmesinin “erken taburculuk” kabulünü arttıracığına inanıyoruz.

Anahtar Kelimeler: Erken taburculuk; aynı gün taburculuk; laparoskopik histerektomi

Correspondence: Çağlar ÇETİN

Department of Obstetrics and Gynecology, Faculty of Medicine, Bezmialem Vakıf University İstanbul, Türkiye

E-mail: drcaglarcetin@outlook.com



Peer review under responsibility of Turkish Journal of Reproductive Medicine and Surgery.

Received: 26 Jun 2022

Received in revised form: 18 Oct 2022

Accepted: 01 Dec 2022

Available online: 15 Dec 2022

2587-0084 / Copyright © 2022 by Reproductive Medicine, Surgical Education, Research and Practice Foundation.

This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

The gynecologic patient benefits from early discharge in many ways. Increasing evidence of literature suggests that same-day discharge is safe for minimally invasive hysterectomy for benign indications.^{1,2} Nonetheless, early discharge after laparoscopic hysterectomy has not gained universal acknowledgement because, in part, of the concern that early discharge could lead to increased readmission rates.³ There are also patient-centred reasons, cultural habits and medicosocial customs.⁴

Preoperative and postoperative rigorous measures, such as multimodal analgesia, early feeding and removal of foley catheter to expedite mobilization, allow for “fast track hysterectomy”. What goes on in clinical practice is that ultimately it is the primary surgeon’s decision to when to discharge the patient. However, as doctors we can not forcefully discharge patients. Factors effecting early discharge or in other words: “fast track hysterectomy” have been previously studied in the literature. The main obstacles to performing “same day discharge hysterectomy” are postoperative pain, medico-social habits and administrative constraints.⁵

Preceding this study standard of care at our institution after laparoscopic hysterectomy was inpatient stay for 24+ hours after surgery. This implementation was due to safety protocols and difficulties in transportation to the hospital. However a change of paradigm ensued in the last years as increasing amount of referrals were made to our hospital and patient beds available for overnight stay were at high demand because of high volume surgery load. Nonetheless “being fit for discharge” is an issue that also involves the patient. Therefore it is paramount to discharge these patients earlier without raising safety issues.

The aim of this study was to initiate early discharge at the same time taking into account patient preferences. The primary outcome was the acceptability rate of early discharge after informing patients that if they wish they can be discharged from the hospital within 24 hours or they might stay longer. The secondary outcomes were to evaluate the 30 day emergency department and hospital readmission rates between same-day discharge and delayed discharge

after laparoscopic hysterectomy in an academic referral centre.

MATERIAL AND METHODS

PATIENT SELECTION AND DATA ACQUISITION

The study design was approved by the local ethics committee and institutional review board (E-2021/107) and registered with ClinicalTrials.gov (NCT05373238). We chose a specific time frame of six months for the trial and included all consecutive laparoscopic hysterectomies. Study was conducted according to the declaration of Helsinki. Inclusion criteria were: women undergoing laparoscopic hysterectomy for benign gynecologic indications and those aged between 35-70 years, with absence of any major medical conditions (such as cardiac disease, use of anticoagulants) that would require extended hospitalization. Exclusion criteria were concomitant procedures other than salpingo-oophorectomy, presence of intraoperative complications higher than grade 2 according to the Clavien-Dindo classification system, surgery for gynecological malignancies and surgeries unfit for early discharge. For leiomyoma indication, uteruses greater than umbilical-level were excluded, as these patients might require conversion to laparotomy.

Preoperative bowel preparation was not routinely performed. All patients had prophylactic antibiotic cefazolin 1 gram intravenously intraoperatively. A total intravenous anaesthesia protocol was used by the anesthesiologists to minimize postoperative nausea and vomiting. After induction of general anesthesia and multimodal analgesia, patients were placed in the lithotomy position. Antiemetics (dexamethasone 0.2 mg/kg was administered). A foley catheter was placed only to be removed right after surgery. A V-Care uterine manipulator (Conmed, Turkey) was used for appropriate uterine mobilization. After the camera trocar and accessory trocars were placed the patient was placed in a 45° Trendelenburg position. The laparoscopic hysterectomy operations were performed by surgeons with at least 5 years of experience in minimally invasive surgery. Two gynecology residents assisted the surgery. When surgically indicated bilateral salpingo-oophorectomy was performed.

Postoperatively the nursing team was eminently alert to providing early pain relief on demand. Liquid food was permitted at 6 hours after surgery. Patients were mobilized six hours after the surgery. Postoperatively the patients were evaluated according to the check-list supplied by a nurse and senior resident to determine if they were “fit for discharge” (Table 1). After postoperative 8 hours all patients who were deemed “fit for discharge” were asked if they wanted to be discharged early or stay another night. They were explained in detail; about the operative procedure and what to expect as normal and when to return back to the hospital in case of emergency. The patients were either discharged from the hospital within 24 hours of surgery (early discharge) or within 48 hours of surgery (late discharge) upon their request. If they chose to be discharged late, they were asked the reason of this decision.

The patients preoperative details and postoperative course was monitored. After discharge routine control for postoperative 1 week was scheduled. Any hospital records other than scheduled appointment were designated as “emergency”. Complications, hospital admissions were noted for postoperative 30 days following the surgery. Variables including patient comorbidities and other details were prospectively collected for each patient. Postoperative outcomes were followed for 30 days following the operation utilizing the hospital’s central medical record system. All patients were scheduled for postoperative 1 month control to account for any other hospital visits or admissions besides our centre.

ETHICAL APPROVAL

The local institutional review board approved the study and was registered with the clinical trials registry (Clinical-Trials.gov identifier NCT03206281). All patients who agreed to participate in the study provided signed informed consent.

TABLE 1: “Fit for discharge” criteria.

Postoperative “Fit for discharge” criteria.
Patient has no nausea or vomiting
Patient ingested liquids and/or food
Patient is able to walk without feeling dizzy or having shortness of breath
Patient self-reported postoperative pain VAS (Visual Analog Scale) <5

STATISTICAL ANALYSIS

The descriptive statistics of the qualitative variables in the study are given as numbers and percentages, and the descriptive statistics of the quantitative variables are given as mean and standard deviation. The conformity of the quantitative variables to the normal distribution was examined using the Shapiro Wilk test. The independent sample t test (student t) was used for the mean comparison of the groups consisting of two categories, and the Mann Whitney U test was used for the median comparison. Pearson chi-square and Fisher exact chi-square tests were used to compare groups in terms of related variables. The statistical significance level was taken as 0.05 and the SPSS Statistics for Windows, version 28 (IBM Corp., Armonk, N.Y., USA).

RESULTS

From October 2021 to April 2022 a total of 275 laparoscopic hysterectomies were performed at our department. After exclusion criteria 194 patients were able to be deemed fit for discharge and these final patients contributed to the study (Figure 1). One hundred and thirty six of these patients underwent hysterectomy whilst 58 patients additionally underwent salpingo-oophorectomy concomitantly. Ninety six (49.5 %) of these preferred to be discharged before 24 hours while the slight majority of 98 patients (50.5 %) opted to stay over 24 hours. The characteristics of both groups is illustrated in Table 2. The groups were similar with regards to age, BMI (Body Mass Index), clinical and surgical characteristics. The major indication for surgery was “leiomyoma” followed by “adenomyosis and intractable bleeding”. The only effective variable reaching statistical significance between the two groups was the duration of the operation. (Table 2). The mean operation time in the early discharge group was 139 ± 31.9 minutes and 183.7 ± 59.3 minutes in the late discharge group. In terms of all other characteristics analysed there was no statistical difference between the groups. The major reason for opting out of “early discharge” was “not feeling well” (n=46) followed by still being “in pain” (n=30). Ten patients claimed that “they would like to see the doctor who performed the operation”. The remaining patients did not specify a reason (Table 3).

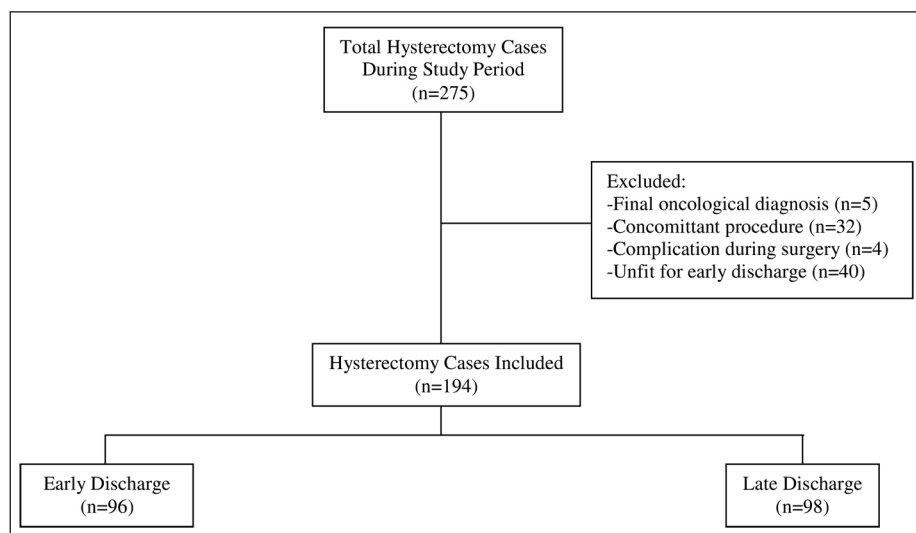


FIGURE 1: Flowchart of the study.

TABLE 2: Demographics of the study population.

Variable	Early discharge (n=96)	Late discharge (n=98)	p-value
Age, mean (SD), years	47.2 (6.7)	48.6 (7.4)	0.14
Body Mass Index, mean (SD)	29.3 (5.3)	29.6 (3.7)	0.75
Clinical characteristics			
Smoker (n, %)	34 (35.4)	21 (21.4)	0.22
Diabetes (n, %)	67 (69.7)	83 (84.7)	0.13
Hypertension (n, %)	55 (57.2)	65 (66.3)	0.19
Asthma (n, %)	10 (10.4)	8 (8.1)	0.83
Hypothyroidism (n, %)	5 (5.2)	7 (7.1)	
Previous C-section (n, %)			
1	40 (41.6)	30 (30.6)	0.16
>1	10 (10.4)	8 (8.1)	0.9
Previous abdominal surgery			
Appendectomy (n, %)	30 (31.2)	28 (28.5)	0.82
Cholecystectomy (n, %)	9 (9.3)	8 (8.1)	0.9
Surgery Indication			
Uterine leiomyoma (n, %)	40 (41.6)	42 (42.8)	0.85
Adenomyosis (n, %)	33 (34.3)	35 (35.7)	0.8
Adnexial benign mass (n, %)	20 (20.8)	19 (19.2)	0.9
BRCA mutation (n, %)	3 (3.1)	2 (2.1)	0.9
Duration of surgery, (SD), minutes	139 (31.9)	183.7 (59.3)	<0.001

During the study period there were a total of 9 ED (emergency department) visits that were not scheduled (Table 4). There were 5 ED visits in the early discharge group and 4 in the late discharge group. Most of these were related to wound care. There were 2 UTI's (urinary tract infection) in the early discharge group and 1 UTI in the late discharge

TABLE 3: Reasons for not preferring "early discharge."

	Late Discharge Group (n=98), (%)
Not "feeling well"	46 (46.9)
Still in pain	30 (30.6)
Not being able to see the doctor who performed the operation	10 (10.2)
Other	12 (12.2)

TABLE 4: Secondary outcomes.

	Early Discharge (n=96)	Late Discharge(n=98)	p-value
Emergency Department Visit (n,%)	5 (5.2)	4 (4.08)	0.82
Postoperative Readmission (n,%)	1 (1.04)	1 (1.02)	0.9
Wound Care/ Complication (n,%)	3 (3.1)	3 (3.06)	0.9
Medical Complication (n,%)			
Urinary tract infection (n,%)	2 (2.08)	1 (1.02)	0.9

group. In the early discharge group one patient was admitted because of “wound complicated by cellulitis”. She was prescribed intravenous antibiotics. In the late discharge group 1 patient with UTI was admitted because of intractable fever and flank pain. This patient later was diagnosed with inadvertent ureteral injury because of a double ureter. Our readmission rate was 1.03% during the study period.

DISCUSSION

In this study our aim was to investigate when patients preferred to be discharged from the hospital after full disclosure of intraoperative surgical procedure and consultation on postoperative healing process. We found that just less than half of the patients desired to be discharged early. The only significant variable affecting this decision was the duration of surgery. No other clinical or intraoperative characteristics were significant.

Certain studies have shown the utility of early hospital discharge within the first day following laparoscopic hysterectomy.^{6,7} Early hospital discharge practice has been widely approved and endorsed in the United States.⁸ However, this strategy of care has not been widely implemented in Turkey and there is a medico-social tendency to keep patients overnight especially among the more senior surgeons. Most studies examining the expediency of same-day minimally invasive hysterectomy procedures report higher success rates than our study, ranging from 88% to 96.9% vs 41.7%.⁹⁻¹⁴ However only 49.5% of our patients accepted “same day discharge”. Even though our study population was homogenous in terms of preoperative variables there are still variables that we did not account for, such as medico-social habits and presence of a full-time caregiver.

Patients may present numerous reasons for wanting to stay at the hospital where intravenous pain control and anti-emetic medication is registered on demand. Additionally; despite the established superiorities of laparoscopic hysterectomy compared to laparotomic surgery, some gynecologists still prefer to postpone hospital discharge after laparoscopy to monitor for postoperative hemorrhage, undetected visceral injury, or because of other postoperative issues. On the other hand patients who have undergone surgery especially for the first time are anxious about the postoperative period. Supportive care is essential to help patients attain a fast recovery rate, as pointed out by Heaton and Walid in their series of 379 laparoscopic hysterectomies.¹⁵ In their series three hundred twelve patients (79%) were discharged the same day and 84 (21%) were admitted for at least 1 night. This study was conducted at an expert setting whereas our study was conducted in a real life academic teaching hospital. In Heaton’s series, the nursing staff was not supportive of early discharge and encouraged patients to stay overnight. We believe nursing staff “encouragement” might also have been a factor for patients to choose to stay longer at the hospital in our cohort.

The leading reason for opting out of early discharge was not feeling well and still being in pain. In large centres where many surgeries are performed postoperative “one on one care” is important and yet most common unachievable due to staff shortages. Adequate pain control is necessary for “being fit for discharge”. At our clinic pain is controlled postoperatively with multimodal analgesia including paracetamol, NSAİ and narcotics when necessary. Despite this highly effective protocol patients were overwhelmed by pain and deemed themselves unfit to

leave the hospital. Nausea and vomiting are anesthesia related complications especially encountered with narcotics. During the study period the anesthesia team at our hospital administered a standard intravenous protocol (TIVA) and antiemetics to limit nausea and vomiting to enable early discharge. Absence of any nausea or vomiting was part of the checklist for discharge fitness.

Our analysis demonstrated that, compared with late discharge, early discharge patients did not experience greater rates of 30-day postoperative complication nor readmission. The main complication that we encountered which was infrequent was surgical site infection. The absence of significant infectious morbidity in our series lends support to the use of a thorough sterile scrub and preparation of the entire abdomen, vulva and vagina. In their report Lassen and colleagues found that surgery lasting more than 2 hours was associated with an overnight stay rate of approximately 50%.¹⁶ In our study the mean surgery duration in each group exceeded Lassen's proposed time of 2 hours. It was 139 ± 31.9 minutes in the early discharge group and 183.7 ± 59.3 minutes in the late discharge group. The rate of readmission in our cohort was very low, mostly because of the fact that we excluded patients with significant preoperative morbidity. An extensive study by Alperin et al. was performed to look specifically at outpatient laparoscopic hysterectomy for large uteri.¹⁷ Same-day discharge rate was 92.8% with a readmission rate of only 1.1%. We believe in real life academic centres it is not a real scenario to have such high early discharge rate. However the readmission rate is similar to ours.

The major strengths of our study is the large number of cases involved and the prospective design. We believe the major limitation of our study was that it is a single centre trial within a limited time frame. Even though it was considered safe to be discharged to home, as evident by low complication and readmission rates, more than half the patients did not prefer to do so. We also observed that our patients were worried about the complications they were preoperatively counselled about. They frequently presented questions regarding what to expect. Ultimately "being fit for discharge" is an issue that also involves the patient. The question arises: "How can we dis-

charge these patients earlier without raising safety issues?" Cultural factors or psychological factors are intertwined with patient well being. Promoting nursing staff and home based visits may increase the acceptability of early discharge.

CONCLUSION

Duration of surgery was the sole variable effecting patient preference of early discharge. There was no difference in complications or 30-day emergency department visits in either group. Ultimately "being fit for discharge" is an issue that also involves the patient. The question arises: "How can we discharge these patients earlier without raising safety issues?" Cultural factors or psychological factors are intertwined with patient well being. Promoting nursing staff and home based visits may increase the acceptability of early discharge.

Acknowledgements

The authors thank Monica Ozkan, for editing the manuscript.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Çağlar Çetin, Ayşe Filiz Gökmen Karasu, Fatma Başak Tanoğlu; **Design:** Çağlar Çetin, Ayşe Filiz Gökmen Karasu, Serdar Aydın; **Control/Supervision:** Ayşe Filiz Gökmen Karasu, Serdar Aydın, Taha Takmaz; **Data Collection and/or Processing:** Fatma Başak Tanoğlu, Ümmügülüm Koç; **Analysis and/or Interpretation:** Özge Pasi, Çağlar Çetin; **Literature Review:** Pınar Özcan, Serdar Aydın, Taha Takmaz, Çağlar Çetin; **Writing the Article:** Çağlar Çetin, Ayşe Filiz Gökmen Karasu; **Critical Review:** Serdar Aydın, Pınar Özcan; **References and Fundings:** Çağlar Çetin, Ayşe Filiz Gökmen Karasu, Fatma Başak Tanoğlu; **Materials:** Çağlar Çetin, Taha Takmaz.

REFERENCES

1. Dedden SJ, Geomini P, Huime JAF, Bongers MY Vaginal and laparoscopic hysterectomy as an outpatient procedure: a systematic review. *Eur J Obstet Gynecol Reprod Biol.* 2017;216:212-23. [[Crossref](#)] [[PubMed](#)]
2. Donnez O, Donnez J, Dolmans MM, Dethy A, Baeyens M, Mitchell J Low pain score after total laparoscopic hysterectomy and same-day discharge within less than 5 hours: results of a prospective observational study. *J Minim Invasive Gynecol.* 2015;22:1293-9. [[Crossref](#)] [[PubMed](#)]
3. Sheyn D, El-Nashar S, Billow M, Mahajan S, Duarte M, Pollard R Readmission rates after same-day discharge compared with postoperative day 1 discharge after benign laparoscopic hysterectomy. *Journal of Minimally Invasive Gynecology.* 2018;25(3):484-90. [[Crossref](#)] [[PubMed](#)]
4. Lawrence P, Rozmus C, Culturally sensitive care of the Muslim patient. *Journal of Transcultural Nursing.* 2001;2(3):228-33. [[Crossref](#)] [[PubMed](#)]
5. Dolivet E, Foulon A, Simonet T, Sanguin S, Turck M, Pizzoferrato AC et al. AMeTHYST (AMbulatory HYstectomy surgery) Feasibility of minimally invasive outpatient hysterectomy, a preliminary study. *European Journal of Obstetrics & Gynecology and Reproductive Biology.* 2020; 252:412-7. [[Crossref](#)] [[PubMed](#)]
6. Thiel J, Gamelin A. Outpatient total laparoscopic hysterectomy *J Am Assoc Gynecol Laparosc.* 2003;10(4):481-3. [[Crossref](#)] [[PubMed](#)]
7. Perron-Burdick M, Yamamoto M, Zaritsky E. Same-day discharge after laparoscopic hysterectomy. *Obstet Gynecol.* 2011;117(5):1136-41. [[Crossref](#)] [[PubMed](#)]
8. Schiavone MB, Herzog TJ, Ananth CV, Wilde ET, Lewin SN, Burke WM et al. Feasibility and economic impact of same-day discharge for women who undergo laparoscopic hysterectomy. *Am J Obstet Gynecol.* 2012; 207(5):382.e1-9. [[Crossref](#)] [[PubMed](#)]
9. Zakaria MA, Levy BS Outpatient vaginal hysterectomy: optimizing perioperative management for same-day discharge. *Obstet Gynecol.* 2012; 120:1355-61. [[Crossref](#)] [[PubMed](#)]
10. Thiel J, Gamelin A. Outpatient total laparoscopic hysterectomy *J Am Assoc Gynecol Laparosc.* 2003;10:481-3. [[Crossref](#)] [[PubMed](#)]
11. Summitt R, Stovall T, Lipscomb G, Ling F Randomized comparison of laparoscopy-assisted vaginal hysterectomy with standard vaginal hysterectomy in an outpatient setting. *Obstet Gynecol.* 1992;80:895-901.
12. Bruneau L, Randet M, Evrard S, Damon A, Laurent F-X Total laparoscopic hysterectomy and same-day discharge: satisfaction evaluation and feasibility study. *J Gynecol Obstet Biol Reprod.* 2015;44:870-6. [[Crossref](#)] [[PubMed](#)]
13. Pizzoferrato AC, Bader G, Nyangoh Timoh K, Andriamafidy-Berti C, Villefranque V Outpatient vaginal hysterectomy, feasibility and morbidity: an observational study on thirty patients. *Gynecol Obstet Fertil.* 2014; 42:67-70. [[Crossref](#)]
14. Reboul Q, Mehdi A, Chauleur C Vaginal hysterectomy in outpatient procedure: feasibility and satisfaction study. *Gynecol Obstet Fertil Senol.* 2018;46:65-70. [[Crossref](#)] [[PubMed](#)]
15. Heaton RL, Walid MSS An intention-to-treat study of total laparoscopic hysterectomy. *Int J Gynaecol Obstet.* 2010;111:57-61. [[Crossref](#)] [[PubMed](#)]
16. Lssen PD, Moeller-Larsen H, De Nully P Same-day discharge after laparoscopic hysterectomy: outpatient laparoscopic hysterectomy. *Acta Obstet Gynecol Scand.* 2012;91:1339-41. [[Crossref](#)] [[PubMed](#)]
17. Alperin M, Kivnick S, Poon KY Outpatient laparoscopic hysterectomy for large uteri. *J Minim Invas Gynecol.* 2012;19:689-94. [[Crossref](#)] [[PubMed](#)]